

REMARKS

Amendments to the Claims

Claims 5 and 10 have been amended. Support for these amendments is found in the Specification at Example 3.

New claim 11 has been added. Support for claim 11 is found in the Specification at Example 3.

No new matter has been added.

Claim Rejections

Written description

The Examiner rejects claims 5-8 under 35 U.S.C. § 112, first paragraph, as lacking adequate written description support in the specification. This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

The Examiner states that one of skill in the art would not recognize that Applicants were in possession of the ability to simultaneously amplify a “plurality” of SNP sites (with no upward limit, or an upward limit of 400) based on the example of amplifying 100 sites using 40ng of genomic DNA. (Office Action, October 13, 2006, page 4, lines 4-9, and Outstanding Action, dated January 28, 2008, page 1-6). Applicants respectfully submit that the amendments to the claims obviate this rejection. Applicants request that the Examiner withdraw the present rejection.

Obviousness

The Examiner rejects claims 1, 3, 5, 7, 9 and 10 under 35 U.S.C. § 103(a) as being unpatentable over Mein et al. in view of Wang et al.. Claims 2, 6 and 8 are rejected under 35 U.S.C. § 103(a)

as being unpatentable over these references and further in view of Brookes. These rejections are respectfully traversed. Reconsideration and withdrawal thereof are requested.

In particular, the Examiner fails to establish *prima facie* obviousness of the claimed invention. The combined teachings of the references do not disclose or suggest all of the features of the claims. For instance, the rate of typing of 98% of input loci is not described by the references. A success rate of **typing** of 279 of 558 SNP sites as described by Wang is not “at least 98%” successful detection of the sites typed. It is only 50% successful detection of the sites typed. The statement that “one of ordinary skill in the art would have had a reasonable expectation of success at employing half the number of loci (approximately 279 loci) with the 100 ng of starting DNA . . . with close to a 100% success rate,” is a mischaracterization of the disclosure in Wang. In fact, Wang discloses that amplification by multiplex PCR of 23 loci, 46 loci or 96 loci resulted in successful **typing** of only 92%, 90% or 85% of the loci, respectively. (Wang page 1080, column 3, lines 10-15). This is far from 100% success, and one of skill would recognize that optimization of the assay would not

The current method is directed to both multiplex amplification by PCR and genotyping via assay. Wang does not disclose or suggest successful typing after multiplex PCR where the success rate of typing is 98%, and Mein does not disclose a similar success rate.

The Examiner attempts to deflect the deficiencies of the references by pointing out that “redesigning” of the assays is suggested as a remedy for their failure. However, no hint as to what should be done to redesign the assay is provided by the references, and therefore this disclosure is only an invitation to experiment to improve the assay. There is no suggestion whatsoever that to adjust the amount of template DNA to the number of sites typed to fall in the range of 10-40 ng per 100 sites. Nor is there any suggestion to use the TAQMAN or INVADER assays for detection of the polymorphisms. Therefore the Examiner fails to establish *prima facie* obviousness of the present claims and the instant rejections under 35 U.S.C. § 103(a) over Mein, Wang and Brookes should be withdrawn.

The Examiner states that “The position taken by the Office is more reasonable than that which is taken by Applicants.” Applicants respectfully submit that the measure of obviousness is not whether the Office is reasonable. It is whether the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Applicants submit that the claims are drawn to simultaneously amplifying up to 100 nucleotide sequences using 10-40ng of genomic DNA, and typing for distinguishing the sites amplified in the amplification step. Applicants submit that the finding that about 0.1 ng of template DNA could be used in combination with the Invader assay to obtain a successful SNP typing rate of $\geq 98\%$ (*see*, Example 3 at pp. 18-19 of the specification) is an unexpected result that rebuts any assertion of *prima facie* obviousness, especially since the artisans of Wang attempted to achieve a similar rate of SNP typing with multiplex PCR using fewer loci and failed. (As discussed above).

Applicants recognize that the Declaration of Dr. Nakamura has been submitted without signature. Applicants are in contact with Dr. Nakamura on this topic. However, the Declaration of Dr. Nakamura serves to bolster the unexpected results *already disclosed* in the Specification.

Applicants note that the Examiner’s construction of claims 7 and 8 is affected by the current amendments. Applicants request the rejection be withdrawn.

In view of the above amendment, arguments and experimental data, Applicants submit that the present application is in condition for allowance, and such favorable action is respectfully requested.

Application No. 10/060,301
Amendment dated October 31, 2007
Reply To Office Action of October 13, 2007

Docket No.: 1254-0195P

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Mark J. Nuell (Reg. No. 36,623) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Dated: May 28, 2008

Respectfully submitted,

By 

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